Rational typographic design

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A rational approach is needed for the preparation of typographical format specifications and for program writing. The professional typographer who, in addition to his or her traditional concern for appearance and legibility, has an adequate knowledge of the editing, data-processing and economic factors involved in computer composition can help to achieve this.

Non-justification as a functional requirement

Much computer composition is wasteful and perpetuates poor typographic practice, such as arbitrary and excessive hyphenation, indentation and justification. The report of the proceedings of the first International Computer Typesetting Conference shows that many delegates became preoccupied with the problem of justification to the exclusion of the setting of unjustified lines with a clear syntactic grouping, having equal spaces between words, as is traditional. Today more and more newspapers, periodicals, children's books, catalogues, directories, stationery, etc, are being set unjustified. Does one have to accept, as is still claimed, that, by long tradition, the printed page must consist of justified lines with centred headings? It appears that neither on the grounds of economics nor of legibility is this likely to remain standard practice and that ranging left to functionally determined vertical axes will take its place, at least as far as European languages are concerned.

Those typographers who have formed the mainstream of functional and humanist thought in European typography during the last quarter of a century take the view that unjustified setting is desirable because it enables many practices such as uneven word spacing, word breaks, and 'widows' (one-word lines at the ends of paragraphs) to be eliminated. Whether word breaks occur in justified or unjustified setting is a problem where hyphenation techniques apply with equal validity. A problem for unjustified setting only is that, instead of having to hyphenate individual words, attention needs to be paid to word-group breaks which must be related to the structure of the sentence rather than allowed to occur by chance.

As the computer line-printer can only printout with non-variable spacing, printout texts are unjustified, as with a normal typewriter. If the printout is acceptable in an unjustified form, why should the final printed product always need justification? The answer may lie in the house style of particular printing firms and in an all too ready acceptance in some composing rooms that only bilateral symmetry can be aesthetically pleasing. The concept of symmetry is fortunately not restricted to that of bilateral relationships. Translative symmetry (parallel displacement) is also of importance in those fields of typography where data requires tabulation as in the presentation of much scientific and technical information.

However, it should not be assumed that the author considers that unjustified setting should replace justification in all circumstances. Multi-column unjustified setting in newspapers, journals and books can be very effective, but can also present problems when the figure/ground effect takes place. This occurs when a white inter-column space is perceived as 'toothing' into the text to its left with a high degree of tonal contrast which can sometimes amount to glare. It is caused by a combination of factors, such as the visual weight of character image, set, word spacing and vertical spacing (inter-linear spacing), and can seriously prejudice legibility. But the same factors also arise in justified setting and can have an effect which is just as disturbing. Here the glare is to be found within the rectangular shape of the justified column alone. For example, after reading a few closely set paragraphs of text in some sanserif faces, the contrast is sufficient to create an 'after image' in the eye when the blackness of the type will be perceived as grey, as will also the white inter-linear spaces. In situations of extreme glare coupled with eye fatigue, the result can be complete illegibility. The writing of programs for computer composition should therefore always be such that the various items which make up the typographical format specifications do not produce the glare described above.

One often hears the argument that justification is necessary in order to save paper and keep costs down. But in traditional book printing practice, as much as 50 per cent of the page area may be left white as a consequence of using a system for determining the position and size of the type area, which is in no way related to the needs of production or to those of the reader. The economies which justification can achieve may therefore not be all that real in traditional practice. Against this, the economies which are gained through less keyboard time being required for unjustified setting are well known.

Lower case for line printers

Typographical format specifications for computer composition are generally thought to be concerned with those for film or metal composition which follows the final computer pass. Little attention has been paid to the typographic attributes which the computer's own line printer should possess and which, in the view of typographers, should also come under the generic heading of typographical format specifications.

The limitation which the line printer has of being able to print only capital letters is one which seriously concerns typographers. It is 40 years since Herbert Bayer argued at the Bauhaus that it was not necessary to write and to print with two alphabets where the signs indicate only one set of sounds. He suggested that the lower case alphabet only should be used. It could be written more quickly with a typewriter as no shift key would be required, and the costs of printing would drop through needing fewer founts and matrices. Since then the superiority of the lower case alphabet over capitals has been acknowledged where clear word and word-group perception is essential. The fact that, in French, capitals occur with less frequency than in English, and in English less than in German, indicates that the restriction of the line printer to capitals may have arisen only through having been originally intended for telegram-style messages which by their nature and their brevity perform a display or titling function. But, as prose texts in any European language contain an overwhelming majority of lower case characters, it is desirable that the lower case alphabet should be incorporated into line printers, to achieve not only better legibility, but also greater visual compatibility between printouts and the final composed job. Apart from wanting the lower case alphabet incorporated into line printers, typographers (especially those who are typeface designers) have a keen interest in the quality of every printout typeface used in line printers.

Unification of typographic measurement

Perhaps the most important development in which typographers are playing a part, and which can have considerable significance for typographical format specifications in computer composition, is the International Council of Graphic Design Associations' project for the unification of typographic measurement, for which working parties have been set up in a number of countries. The United Kingdom working party was set up jointly under the initiative of ICOGRADA, the Society of Industrial Artists & Designers and the Society of Typographic Designers. It works in close consultation with the printing industry and the British Standards Institution.

The project was launched at the first International Congress of ICOGRADA in 1964. Its purpose is to overcome the confusion inherent in the simultaneous use in the printing industry of at least four conflicting systems of measurement: inches, centimetres, Anglo-American point, and Didot point. In the course of the work it has become necessary not only to strive for agreement on the consistent use of one system of measurement but to develop a system of dimensional references permitting precise description of type size. It is widely recognised that the traditional method is unsatisfactory. This describes type of widely varying visual size by uniform reference to body size, with perhaps the addition of loose terms such as 'condensed', 'normal', 'extended', 'small face', 'titling', etc.

Ernest Hoch and the author have set out to evolve a comprehensive system of dimensions to which precise values could be ascribed and which would be applicable to both film and metal, and computer composition.

ISO standard paper sizes make sense

The adoption on an ever increasing scale in the United Kingdom of the ISO (International Organization for Standardization) range of paper sizes specified in ISO Recommendation R216 and known as the ISO-A and B series, has important implications for typographical format specifications used in computer composition. The relevant British Standards are BS 1311:1955 (amended 1958) Sizes of Manufacturers' Trade & Technical Literature, and BS 3176:1959 Printed Matter and Stationery—A and B Series of Trimmed Sizes. The ISO-A and B series are now covered by national standards in over 20 countries and are used in many others, so whatever implications there are for computer composition in the United Kingdom can be expected to apply with equal validity to other computer-orientated countries which also use the ISO-A and B series, such as Germany, Japan and the USSR.

The use of the ISO-A and B series, being based as they are upon the principle of geometrical similarity as expressed by the equation $y:x = \sqrt{2}:1 = 1{,}414$, means that it is possible to standardise not only page areas, type areas and grids for similar functional requirements in publications of the same size, but that for certain purposes type areas and grids may be simply doubled or halved for other sizes as this is the method which determines each size in the ISO-A and B series. This can result in writing cheaper programs with a much wider field of application.

It is desirable that continuous stationery printout paper should be manufactured so that ISO-A or B size sheets can be cut without waste. This would ensure that such sheets to these sizes were compatible with the ISO-A and B series stationery and print which have been introduced in government departments, and in industry, as part of a general policy of rationalisation. As an example of the extent to which the A4 size (210 x 297mm) is now being used in one industry, The Building Centre in London claims that 60 per cent of the trade literature which it receives from manufacturers is to this size.

The rôle of the typographer

Finally, rational typographical format specifications, although assisted by the procedures described, are unlikely to be fully achieved until the typographer realises that his or her rôle in computer composition may change to become not only that of the systems analyst or programmer, but also that of the author or editor where an understanding of how to communicate clearly the syntactic structure of language through print is essential.

Literature

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